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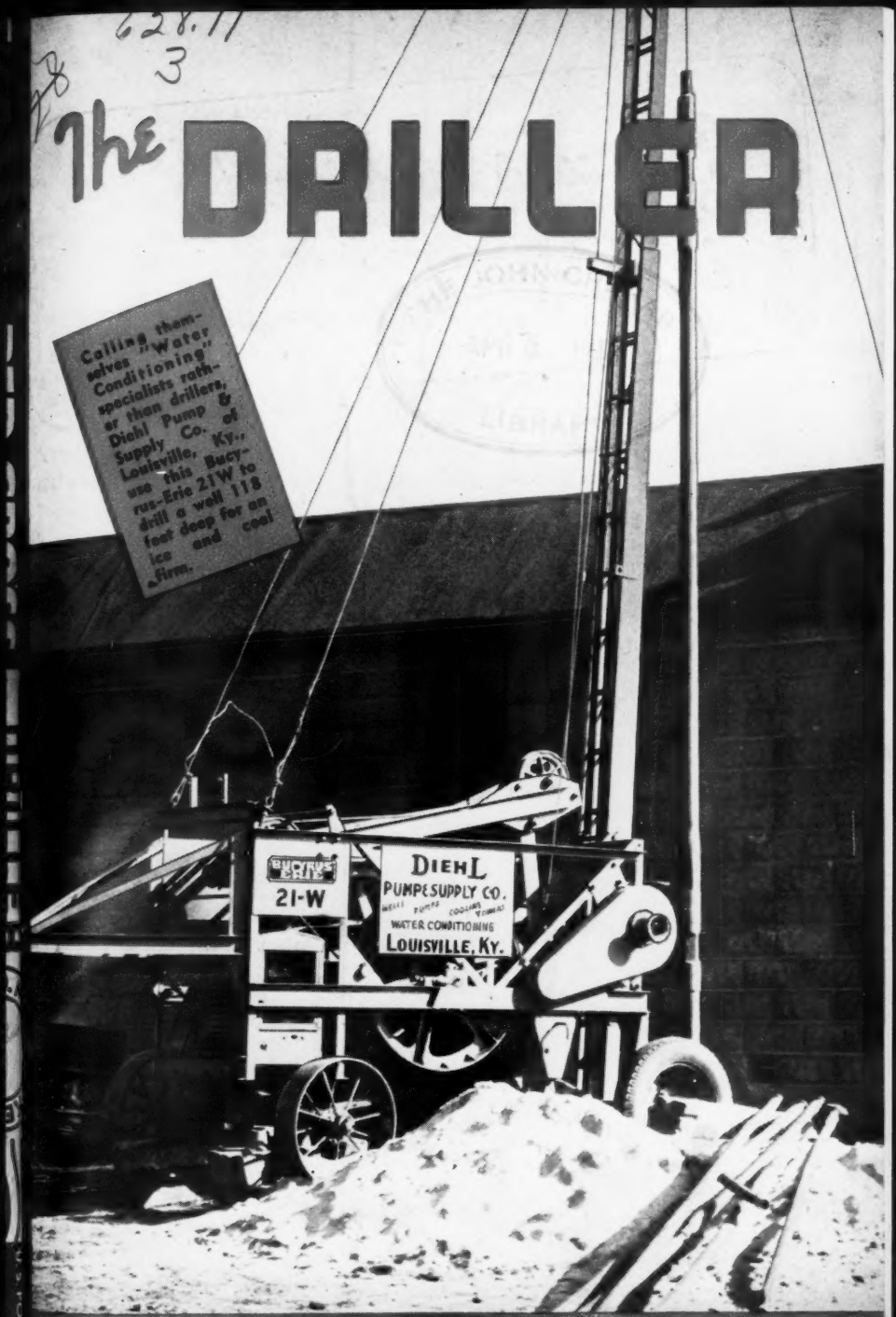
The DRILLER


Calling themselves "Water Conditioning" specialists rather than drillers, Diehl Pump & Supply Co. of Louisville, Ky., use this Bucyrus-Erie 21W to drill a well 118 feet deep for an ice and coal firm.
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21-W
DIEHL
PUMPESUPPLY CO.
WELLS PUMPS COOLING TOWERS
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VOLUME 19 APRIL, 1945 NUMBER 4

There's Extra Hole in Easy Operation

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high because of the power
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deliver — is given an ad
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right spot — where he can
what he is actually doing.
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grouped, all within easy r
of the operator so that he
maintain complete control
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machine. That means sa
speedy operation and — b
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which Bucyrus-Eries are not
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Find out about them to

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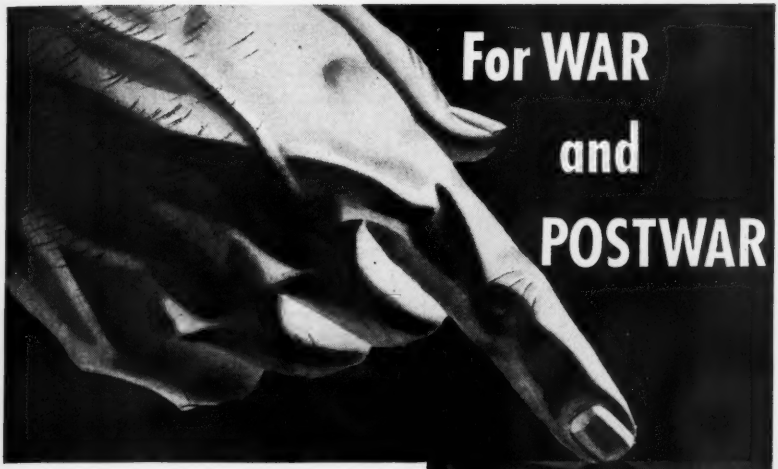

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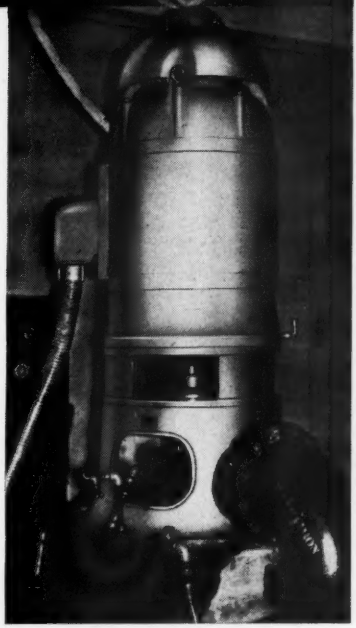


DEMING

THE COMPLETE LINE

PUMPS AND WATER SYSTEMS

The Deming Company · Salem, Ohio

Subdivision Driller

Among the suburban well contracts obtained by this northern Illinois driller was one for 275 wells. This contract, like the others he has had in his 15 years in business, are a tribute to his sound business sense.

NICE work if you can get it — that's what a good many drillers would say of a contract that involves drilling enough wells to keep you busy for almost four years. E. H. Glenn of Antioch, Illinois, was of a similar mind, and when the chance came to get the work he got it!

It was back in 1938 that Smith and Dawson, real estate firm of Northern Cook County, Illinois proceeded with plans to build the subdivision of "Prospect Heights." Lots on a subdivision of that kind would, they foresaw, bring better prices and be more readily salable if good running water was available. That's where E. H. Glenn came in; for to him went the job of drilling the wells to assure the water supply.

Each one of the lots had 100-foot frontage and a depth of 200 feet, and was to have its own water and sewage system. The 275 wells drilled by Glenn averaged 120 feet in depth and were, for the most part, four-inchers, although some of the first wells had two-inch diameters. Glenn started the job in 1938 and finished the last well in 1942.

Contracts like this are scarce, of course; the type of work—subdivision wells—is pretty much an old story for Glenn, however. Located in the lake dotted area of extreme northern Illinois—Antioch is practically on the Illinois - Wisconsin state line—Glenn is in a region that is attracting many more residents each year. In order to escape crowded Chicago city life, people have flocked to outlying regions to establish "year 'round" homes.

That means subdivisions and more subdivisions, many new homes, and many new wells—enough, in fact, to make up a pretty large part of Glenn's total business in normal times.

Not that he avoids other types of

wells completely—far from it. The territory in which he operates includes northern Cook County and Lake County in Illinois and Kenosha County in Wisconsin. A glance at a map reveals that this territory embraces not only part of the suburban area of Chicago but also plenty of rich farm land. It's only natural that Glenn should get a sizable number of farm wells to drill, and in some years farm jobs run almost as high as fifty per cent.

The usual diameters for Glenn wells are 4 to 6 inch, although some of his suburban jobs have been 2-inch. The depth range is from 100 to 300 feet. In addition to new wells, Glenn does plenty of repair work.

The glacial drift in Glenn's territory is fairly deep, varying from about 120 to 280 feet. Most of his wells are finished in the drift, while a smaller number are drilled into the Niagara limestone formation underlying.

Glenn—or "Ernie" as his friends call him—regards the Niagara as his limit, not caring to go deeper. He bought his drilling equipment — a Bucyrus-Erie 21-W — to fit shallow well work because he knew there was a lot of it in his territory, and he's sticking to his specialty. In line with this policy, he abandons any hole that is drilled through the Niagara without bringing in a satisfactory water supply, and tries a new location.

Old Well Pumps Quicksand

Ernie's chief helper—and at present his *only* one—is his 19-year old son, Henry, who has been prevented from serving in the Armed forces by a previous illness. Like his father, Henry is highly interested in his work and gives to it the energy that leads to success.

One of the most puzzling jobs that Glenn has encountered was a 135-foot farm well which, after 40 years of good service, suddenly began pumping quicksand in 1944. Glenn

• In the lake-dotted area of southeastern Wisconsin, E. H. Glenn starts a six inch well for a small town tavern.

was called in to look at the well and, if possible, remedy the situation by cleaning out the well. He cleaned it, but found nothing but quicksand at the bottom. His thought, then, was that in the old casing there might be a hole that was permitting the quicksand to seep in. Not wishing to take a chance on the old casing, Glenn moved his rig 50 feet away and drilled another well. At 135 feet, the depth of the old well, he struck more quicksand, so he kept on drilling to rock, which he struck at 160 feet. He drilled through the Niagara formation to a depth of 270 feet and still no water was found. That was far enough, so he pulled out his tools and moved to a third spot 150 feet away. This time he got a well that pumped 10 gpm, providing plenty of water for the farm. He's still puzzled as to how a well can be perfectly good for forty years and then suddenly begin pumping quicksand—unless the character of the formation changed completely.

Drills Air-blowing Well

Another surprising well was one which sucked air at 115 feet, and *blew* air at 130 feet. And at 140 feet a good flow of water was obtained! This well was put down for a subdivision in Wisconsin's Kenosha County in 1936.

While none of Glenn's wells has, in itself, achieved widespread fame, he's had the distinction of drilling two wells and doing repair work in three others that helped maintain the 1943 world's champion cow. The animal was raised by E. H. Ravenscroft, head of Abbot Laboratories, a drug firm of North Chicago. Owner of two large farms near Antioch, Ravenscroft called on Glenn to drill two new wells for his farms. One was a 2-inch, 60-foot well delivering 10 gpm, and the other was a 4½-inch, 160 footer which brought 15 gpm. Both were drilled without any of the complications that make some jobs "tough."

Speaking of difficult jobs, Glenn's stock answer to the question "What was your toughest job?" is "We haven't yet had our toughest job. No matter how bad they are, the worst one is always coming!" However, he quickly recalls a church well which, although it brought a good supply of wholesome water, had a generous portion of sulphur in its water and gave off a far-from-pleasant odor. Drilled for the Congregational Church at Milburn, Illinois in 1936, the well was a 225-footer begun at 3-inch diameter and reduced to

• The modern pick-up truck that Glenn and son use to service their Bucyrus-Erie 21W.

2-inch at about 200 feet. It was finished in rock and produced 10 gpm.

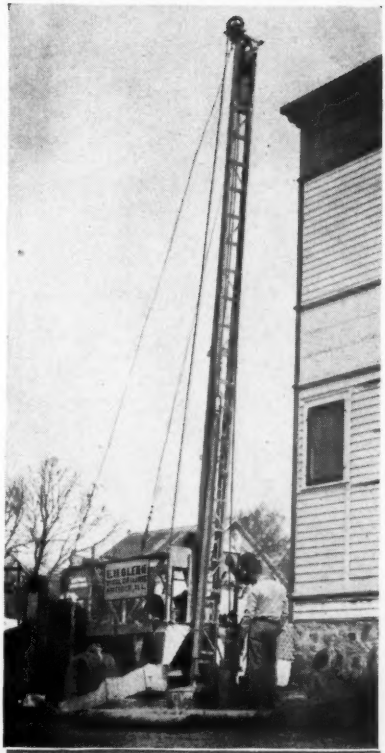
There have, of course, been a number of other jobs in Glenn's 15-year career as a well driller that come under the heading of "tough", but he's managed to keep them at a minimum. Looking back to his start as a driller in 1929, he recalls that his first machine was a "trip-drum" affair. It achieved its spudding motion directly from the bull reel, which, when set for drilling, would turn part way to lift the tools and then trip and let them fall to strike their blow. He used the machine for two years.

Formula for Success

Later he built his own rig, a unit that resembled the Bucyrus-Erie 21-W, although at the time he constructed the machine he had never seen a 21-W. He used the home-made rig until 1939 when he bought a new 21-W which he is now using. His plans for the future include adding another 21-W.

Just as there has been a big change in the equipment used, for well drilling, there has, Glenn believes, been a big change for the better in the industry. He can remember when "well-driller" was a term practically synonymous with "crook." That's not true any more; in fact, Glenn believes that through honest dealing drillers have fostered the confidence of the public, until now there is a great deal less suspicion involved in drilling contracts, and that is better for all concerned.

Besides honest dealing, Glenn has at least one other cardinal point in his formula for success. That is "keep on good terms with your competitors." It's been his experience that other drilling contractors are glad to play square with someone they know will be fair to them. The result is an absence of the "cut-throat" competition that hurts all the parties involved.



▶ Son Henry watches his father feel the line of the machine that helped drill 275 subdivision wells in four years.

That's the kind of level-headed thinking that characterizes Glenn's entire business. Steady and conservative, Glenn subscribes to the theory that the only kind of progress that is worthwhile is the kind that has a good foundation. He's schooled his son, Henry, in the same philosophy. And that's why it's almost a sure bet that progress in the Glenn firm will be steady, sound, and meaningful.

Geophysical Logging
of Water Wells in Northeastern Illinois

By
CARL A. BAYS, Geologist and Engineer
and
STEWART H. FOLK, Associate Geologist,
Illinois State Geological Survey, Urbana, Illinois

Editor's Note: *Material for this series is from a paper presented to the Western Society of Engineers and published in its Journal for September, 1944. These articles appear in THE DRILLER by special permission of the Western Society of Engineers and of the Illinois Geological Survey.*

From geophysical logs made in Illinois and correlation of the data therefrom with all available geological, engineering, and production records, it has been possible to formulate a number of concepts believed to be widely applicable in development and production of the water resources of deep wells in northern Illinois. These concepts merit consideration in laying plans for rehabilitation of old wells and for drilling new wells.

Conservation of Drilling

Examination of zones producing large quantities of water in deep wells has shown that in addition to the main sandstone zones, there are numerous crevice systems with high specific capacities. In many wells sandstones and crevices act as thieving zones which take considerable volumes of water from wells under both producing and static conditions. Because the role of crevice systems was not understood, many wells have been drilled through several zones, each of which was capable of producing the needed water supply. Usually the specifications for a well require drilling to a specified depth or producing zone because it is generally understood that most of the water in the area is produced from a certain aquifer or above the specified depth.

Drilling costs and time could be reduced if well drilling could be done with geological conditions in mind. In many areas, crevice systems in the Niagaran or Galena-Platteville formations are quite capable of producing as much water as would be obtained from wells drilled to the Galesville or Mt. Simon zones where under typical producing conditions one or two zones will produce considerable water but where losses are

Geophysical logging and the correlation of various data, as gathered by the Illinois Geological Survey, make it possible to bring abandoned water wells into useful production. This installment also shows how careful testing during drilling can determine when an adequate water supply has been reached.

high in the thieving zones. In many areas careful testing of each possible producing zone during drilling will lead to considerable saving if drilling is stopped where adequate water is obtained. Wherever there is evidence that a crevice system is intersected by a hole, investigations should be made to see whether the crevices are capable of supplying the required demand. Several wells nearly 2000 feet deep which have been surveyed obtained most of their production from the first few hundred feet and have serious losses of water into some of the lower zones. In the Chicago-Joliet area there is evidence to suggest that wells drilled to crevices in the Trempealeau formation might yield as much water as deeper wells drilled through the Galesville.

Testing Well Capacities

Running a pumping test on each individual zone is not usually considered a feasible means for testing because of the high cost. However, another simple method may be used in water wells. The technique is a result of observations by the writers when running water into wells to obtain hole-filled potential and temperature logs. It was noted that wells of high capacity took large volumes of water readily and that high inputs were necessary to keep the wells filled while logging, whereas wells

Integration Of Data

Through compilation and comparison of data derived from a number of methods of investigation, supplemented with all available geological and production data from a specific well and near-by wells, a reasonably good picture of subsurface conditions can be obtained and many of the problems of groundwater production can be solved. To integrate all such information, a composite log of each well is prepared. The composite logs now made by the Illinois Geological Survey present the following:

1. A detailed log of the lithology of uncased portions of the well based on microscopic study of cuttings from the well or near-by wells and the electric log and a sample study of the cased portions of the well.
2. Exact measurements of the casing and liners, both as to depths and inside diameters, and some knowledge of their condition.
3. Location, thickness, and relative importance of the water-producing zones.
4. Location of "thieving" zones.
5. Approximate salinity of the water in the well-bore, and probable zones of production of waters of different salinities.
6. Temperature of the water in the well-bore and approximate temperature of water from different zones.
7. Caving zones that have not been cased off.
8. Circulation conditions under non-operating conditions.
9. Critical production or well conditions such as collapsed or corroded liners, poor casing seats, location of iron or steel "fish", etc.
10. Effects of shooting, acidizing, caving, and other special conditions within the well.

with smaller capacity took proportionately smaller volumes. Wells capable of making 1200 gallons per minute took as much as 600 gpm to keep them full, and smaller-capacity wells took much less. While no mathematical relationships have as yet been worked out, it is safe to conclude that a well that requires large volumes of water to stay filled will also produce large volumes. If a near-by water supply, such as a fire-hydrant, is available, it will provide a ready and inexpensive "rule - of - thumb" method of testing the capacity of a well during drilling.

Cementing of Casing

In most wells in northeastern Illinois a string of pipe is set through glacial drift into bedrock. Another string of casing is usually set inside this "surface" string running from the surface through the Silurian limestone and dolomites, through the Maquoketa shale and for some short distance into the underlying Galena dolomite. This may be referred to as the "long" string. Usually no other casing, except liners to case-out caving shale, is set in these wells.

The surface string is either driven through the glacial drift, with a forged-steel or similar shoe on the bottom of the pipe, or it is set on bedrock, after the hole is made. The long string is usually set on a shoulder in the dolomite near the top of the Galena formation. In nearly all of the wells surveyed ineffective casing seats were found. Most dolomites, particularly where creviced and fractured, do not permit satisfactory shut-off without special means of sealing being used. A nearly standard recommendation following a geophysical survey is for the long string to be cemented or pressure-grouted from bottom to top. The best known method of cementing pipe is to bridge or plug the well immediately under the casing, pump a cement slurry of proper weight and composition down the casing and up around the outside until the pipe is completely enveloped in cement.

Proper cementing effectively seals the casing seats of wells and thereby prevents pollution and contamination of the well by surface or near-surface waters, and also may be expected to reduce pipe corrosion by

The Illinois Geological Survey moves its geophysical logging truck into an industrial region in Chicago on a typical well set-up.

protection of the casing and to prevent circulation of water behind the casing between cased-off aquifers, thus protecting important gravels and shallow crevice systems from contamination.

Reconditioning Old Wells

With one exception, all of the geophysical surveys have been run in wells under so called static conditions. In only rare instances have such wells been actually static; generally water is moving from one zone to another because of the differential pressures in the different aquifers. In some cases this circulation is at rates of more than 100 gpm. There must be several hundred deep wells in northeastern Illinois which are not in use or for which no further use is planned. A number of these probably could be reconditioned as useful water producers with proper engineering practice.

Plugging of Abandoned Wells

It is probable that the majority of such wells are acting as channels for thieving between formations and are effectively reducing the water levels in wells in their vicinity inasmuch as the levels in such wells are controlled by the head in the formation which has the lowest pressure. In addition, many such wells have poor casing seats and so receive polluted or contaminated water from the surface. In many areas wells have been abandoned because they were drilled into zones which produce water too hard, too salty, or for other reasons undesirable. Thus every abandoned well is a possible channel for loss of large quantities of water from aquifers productive in other wells, a possible cause of part of the local reduction in water levels in some areas, a possible source of contamination and pollution into widely used aquifers, and a possible cause for high chloride content, hardness, or other undesirable features of the water in near-by producing wells. All abandoned wells that do not readily lend themselves to rehabilitation should be plugged from top to bottom in order to eliminate the hazards they create.

The final installment of this article on Geophysical Logging, to appear in an early issue, will discuss its many advantages in determining proper well spacing, operating levels, soft-water formations, and water for cooling purposes.

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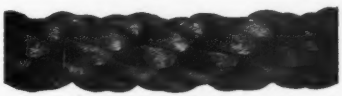

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Subdivision Jobs Offer Extra Profits

EVERY progressive well driller will find meat for thought in the article starting on page 4 of this issue. The story of E. H. Glenn, who obtained a contract in 1938 to drill 275 residential wells for a new subdivision, chronicles a pre-war phase of the business that should become more prominent after victory.

The subdivision contract gave this driller four years of continuous work which, as the writer of the article put it, is "nice work if you can get it". Very true—and more drillers *can* get work of this nature.

Today, of course, subdivision building is pretty much at a standstill, but thoughts about subdivision well drilling should not be abandoned or postponed until post-war.

Reports forwarded to the Associated General Contractors of America, Inc., and statistics gathered by other bureaus, indicate that building activity for the first 12 months after Allied victory in Europe will equal that of 1938 if war controls on materials and manpower are relaxed. This information is known to all building contractors who also are aware that:

1. War work has improved the income, savings, purchasing power, and credit of millions.

2. The housing shortage has built up an enormous potential demand for new homes the past four years.

3. Those who expect to build new homes are planning on an average investment of $5500 exclusive of the lot. They are the people who will demand a good supply of wholesome water and are willing to pay for it.

Drillers Can Plan on Boom

Many builders already have sites chosen, homes blueprinted, materials contracted, financing arranged. They have included details such as sewerage systems, roadways, electrification, and water supplies. They are set to build at the first signal given by the government.

The alert well drilling contractor will "hook on" to this coming boom today. He will contact his local housing contractor and point out that proper water supply makes each lot more attractive, improves the subdivision, and influences prospects in the higher income bracket. He will offer his experience and equipment to drill wells and install pumps as a sub-contractor.

To the driller this can have but one conclusion: a long-term contract at "nice work" that can keep an extra rig going at good profits.

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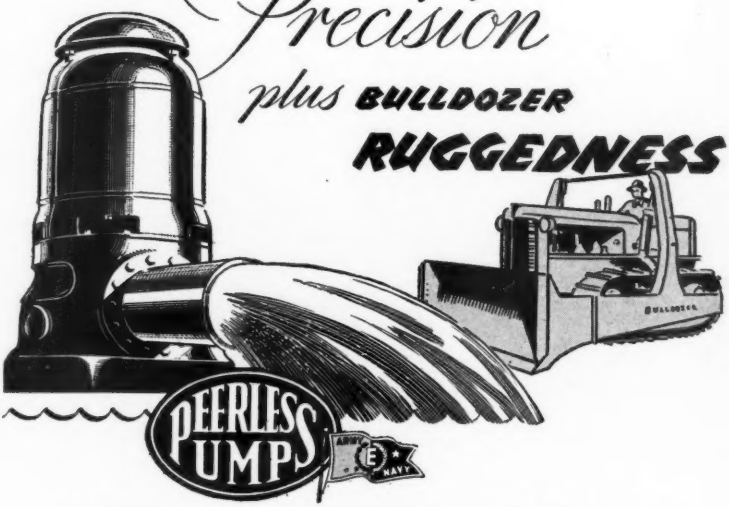

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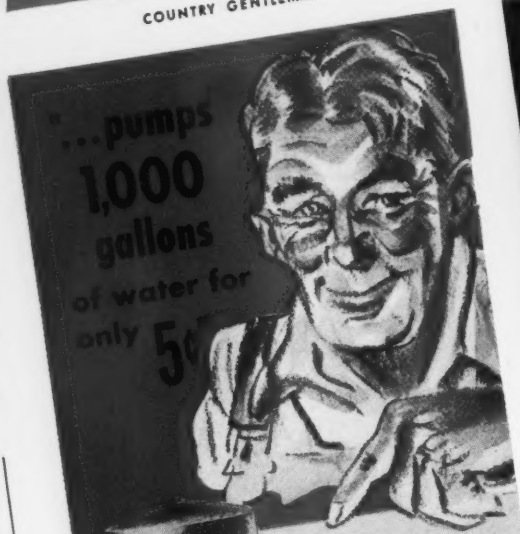

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← This ad runs in COUNTRY GENTLEMAN for April, 1945.

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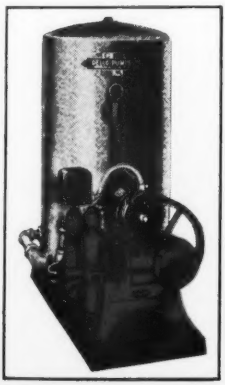

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NEWS OF THE MONTH

Nebraska Officers Discuss Problems

FOLLOWING a policy of cooperation with the government, the Nebraska Well Drillers Association cancelled its annual convention for 1945 but held a meeting of officers, directors, and district chairmen at Lincoln, Nebraska on February 19.

A letter report outlining the present status and future plans of the association was sent the membership. Enclosed were a list of Nebraska water well drillers and a post card requesting names of new drillers, address changes, corrections, etc., be forwarded to the association.

The association announced that two-thirds of its funds were invested in war bonds. Dues have been suspended for 1945 and membership cards are being forwarded to those who attended recent meetings.

Cooperation with the Conservation and Survey Division of the University of Nebraska recently made available to active members publications which the association felt of interest to Nebraska well drillers.

Ground Water Drop In Illinois Denied

CONTENTIONS that Illinois' ground water supply was being depleted were branded as false by the Illinois Water Well Drillers Association at their February meeting held in Chicago's Morrison Hotel.

The newly elected president, William A. McEllhiney, stated the reports are driving industry from Illinois and hindering the post-war plans of industries already located in the state.

The association elected J. T. Anderson, Morris, vice-president; Henry Woolen, Wapella, secretary; C. F. Stiegman, Paxton, treasurer; and L. F. Swanson, retiring president, was named a director.

N. Y. Meeting Set

THE EMPIRE STATE Water Well Drillers' Association will hold its quarterly meeting April 11 at 3:00 p.m., Neil A. Crandall, secretary has announced. The meeting is scheduled to be held at Morris, New York.

Water Shortage In January Revealed

CONTINED cold weather and subnormal precipitation in the States north of the Ohio River together with low ground water has resulted in critical water-supply shortages for January, a U. S. Geological Survey report states. Some curtailment of war production has been caused by lack of water.

Ground water conditions continued spotty during January. In areas unaffected by heavy pumping ground water storage decreased generally, although ground water recharge resulted in storage increase in other areas. The water levels in most wells were in the normal range at the end of the month, but a number of wells in the Atlantic and Gulf Coasts, the Central West, and Utah were in the

high range. Only a few scattered wells were in the low range, including some wells in Illinois and Indiana, Nebraska, and western Washington and Oregon.

Officers Elected By New Jersey Drillers

THE NEW JERSEY Water Well Contractors Association held its annual meeting at the Montclair Athletic Club, Montclair, N. J., and re-elected Fred Bock, Manager of the Artesian Well & Equipment Company of Rochelle Park, as President. Other officers elected were Allen Feakins, Dale - Feakins Company, Ledgewood, Vice-President; J. J. Reilly, Verona, Treasurer (Mr. Reilly, now retired, was given life membership in recognition of outstanding past service). Marvin L. Parkhurst, General Manager of the Parkhurst Well & Pump Company, was re-elected Secretary.

Honorary memberships were extended Meredith E. Johnson, State Geologist; Dr. R. W. Rudolph, Rutgers University; Arthur J. Carr, American Water Works Association; and Dr. H. E. Lindall, Rutgers University.

Offers New Public Relations Book

'GOOD Public Relations for the General Contractor', a free 24-page manual on the building of public good will, has been published by the Associated General Contractors of America, Inc., 10 Rockefeller Plaza, New York 20, N. Y. The three color booklet contains a public relations chart, sample advertisements, project signs, and posters with examples how good will can be merited, attained and kept.

Coming!
A SKY POWER
MOTORLESS
WATER SYSTEM
Millions of farmers have long awaited a running water system, complete on the farm and low in operating cost. Now comes the realization of that dream with the Monitor motorless water system.
Pressure controls will make the Monitor windmill fully automatic — pumping at night and while the family is away from home. A 1000-gallon tank or concrete storage reservoir will provide a reserve of cool running water.
Don't wait until after the war. You can start your sales campaign today. Install Monitor Sky Power windmills on the farms in your territory. When pressure tanks with Automatic Controls are available they can be attached to windmills you sell now, thus assuring you of a profitable follow-up business.
Now is the time to start getting your share of the sales.
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SKY POWER WINDMILL WATER SYSTEM
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DEEP WELL WATER SYSTEMS • WINDMILLS • HAND PUMPS • PUMP JACKS • ENGINES • WATER WELL SUPPLIES
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BAKER MFG. CO.: Minneapolis, Minn.; Madison, Wis.; Fort Dodge, Ia.; Cedar Rapids, Ia.; Omaha, Neb.; Kansas City, Mo.; Enid, Okla.; Hutchinson, Kansas
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AXTELL CO.: Fort Worth, Tex.; Amarillo, Tex.; Lubbock, Tex.; San Angelo, Tex.
BAKER MANUFACTURING CO., EVANSVILLE, WIS.

FROM THE MAILBAG

This page is open to any of our readers having questions to ask relating to drilling, driving pipe, dressing bits, etc. All letters will be answered promptly by experienced drillers and engineers who are qualified to give intelligent advice on these subjects. We will publish as many letters of general interest as space will permit. Address: The Driller, South Milwaukee, Wis.

Dear Sirs:

What can I do to prevent bits from cracking and chipping at the cutting edge when sharpened? Some times they chip off at the corners of the cutting edge and at the same time the center of cutting edge is soft. I have been dressing bits for years but the last bits I got do not seem to have the same steel and crack on me although I use the same precautions as before.

R. R. H. Penna.

Ordinarily cracks at the point are caused by uneven expansion or contraction of the steel during either the heating or the quenching process, but we would judge from your letter that you have observed the usual precautions and we cannot understand why you have not secured satisfactory results. You mention that the bits chipped at the corners of the cutting edge, and at the same time the center of the cutting edge is soft. This condition might be caused by quenching when the outer surface of the steel is up to the critical temperature while the center is slightly under the critical. In other words the bits may have been heated for quenching, a little too fast, not allowing enough time for the entire mass of the steel to reach a uniform temperature.

Sirs:

I am having trouble with a well I am drilling. It is a 5-inch hole, 575 feet deep at present, about 30 feet into sandstone. At that depth, while cleaning the hole, I noticed a thin layer of shale at the bottom of the hole. The last bit used prior to that time was ⅛-inch under gauge when it was taken out of the hole.

After putting on a sharp 5-inch bit, I ran the tools down into the hole, without running down the bucket beforehand. The tools went to the bottom and stuck. I jarred for 5 hours but could not loosen them. I also tried to get a rope knife that would work in 5-inch hole but could not find one.

Do you think that if I took 575 feet of quarter-inch pipe I might loosen the drillings by using a big air compressor? I do not think that the ⅛-inch over the bit taken out would result in sticking. I think that the drillings in suspension and the thin layer of shale are causing my trouble. Will you advise me, please?

R. J. W. Wisconsin

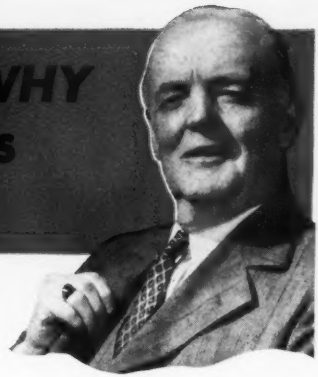
In spite of the fact that you state a thin layer of shale was encountered at the bottom of hole which might possibly result in hanging up the tools as you describe, it looks to us like a case of running a new sharpened bit in a slightly undersize hole in the rock causing the bit to pinch or jam in the hole.

Under ordinary drilling conditions, sticking of the tools at the bottom is not serious as the tools can usually be loosened with a few blows from the jars or if jars are not being used, with a few blows by the bumper. It is rarely that the tools will become so solidly wedged that they cannot be loosened without resorting to fishing tools.

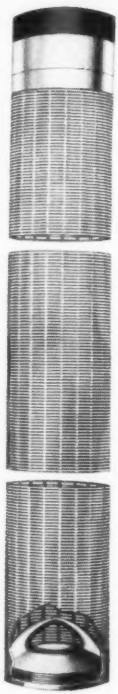
We infer from your letter that you have tried to loosen the tools with a bumper without success. In that case the next procedure is to cut the cable at the top of the socket and run a string of fishing tools. It is necessary to use a combination socket to catch the neck of rope socket as you cannot run a slip socket in this hole on

(Continued on page 23)

"... all right, JUST WHY are COOK STRAINERS more serviceable?"



A frank challenge... and here's our answer:



Cook WW Strainer for Plain and Gravel-Wall wells.

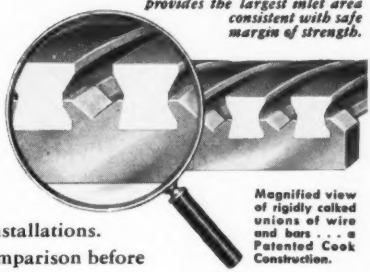
COOK WW Strainers have a *patented feature* that definitely settles the question of rigidity, durability and efficiency.

COOK Strainers are CALKED under pressure, by an exclusive process, thus avoiding: 1. Hard, brittle spots in wire, due to change in temper caused by applied heat (welding). 2. Change in chemical composition of wire, due to more volatile elements being lost because of applied heat. 3. Limitations in kinds of alloys that may be employed.

Hence, COOK Strainers can be made from any iron, copper or nickel alloys. Refined Iron, Silicon Bronze and famous Red Brass are standard.

COOK Strainers are SAFE, because strong; EFFICIENT, because of largest inlet area consistent with strength; DURABLE, because of size of wire and supporting bars and because of no physical and chemical changes in composition of material during construction; ADAPTABLE, because of a variety of strainer connections and fittings to select from to meet all methods of installations.

This Cook non-clog construction provides the largest inlet area consistent with safe margin of strength.



Magnified view of rigidly calked unions of wire and bars . . . a Patented Cook Construction.

Have all COOK facts for comparison before ordering that next strainer.

COOK

CALKED WW STRAINERS

A. D. COOK, INC. LAWRENCEBURG, INDIANA

WIT BITS

"Doctor, what are my chances?"

"Oh, pretty good, but don't start reading any long continued stories."

State's Attorney: "Are you sure this is the man who stole your car?"

Plaintiff (much befuddled): "Well, I was. Now after the cross-examination, I'm not sure I ever owned a car!"

A forest ranger in Arizona frequently saw an Indian chief riding his horse up the canyon trail, his wife trudging along behind him.

"Why is it?" the ranger asked one day, "that you always ride and your wife walks?"

"Because," was the solemn reply, "she no gottum horse."

"You can't expect me to eat this stuff, waiter. Call the manager!"

"No use, sir. He won't eat it either."

In Memphis, a worried Negro walked into the office of the rent control administrator and asked if anyone could tell him who his landlord was.

Clerk: "Your landlord is the man you pay rent to."

Negro: "I don't pay no rent. You see, 'bout nine years ago I found me a house vacant and moved in. I been there ever since and I ain't never paid no rent."

Clerk: "Well, then what are you worrying about—you have no complaint."

Negro: "Yassuh, I knows that. But if somebody don't fix that roof, I'm gonna move out."

"Darling, I got a beautiful parchment diploma from the cooking college today and I've cooked this for you. Take a bite and guess what it is."

"The diploma?"

A sailor went to an auction. The auctioneer was offering a parrot. He bid $5.00. Someone said $10.00, and the sailor bid $15.00. Again someone bid $25.00 and the sailor bid $40.00 and got the parrot. As he walked out he said to the auctioneer, "That's a big price to pay for a parrot, can he talk?" The auctioneer said: "You ought to know, he's the one that's been bidding against you."

"John, dear, let's try to keep people from knowing we were just married."

"O.K. You carry the suitcase."

A hunter took a shot at a bird sitting on the wall and immediately a farmer's angry face popped up.

"Dadgummit, you almost shot my wife."

"Oh, gee, I'm sorry! Here, take my gun and have a shot at my wife over there in the car."

"If you're looking for my husband, he's gone fishing. Just walk down to the bridge until you find a pole with a worm on each end."

"Oh, Doctor, it was nice of you to come way out here just to see me."

"Well, I have a patient next door, so I thought I'd kill two birds with one stone."

THE F. E. MYERS & BRO. CO.

Dept. C-52, ASHLAND, OHIO

Public And Private Wells Distinguished

TWO law cases involving wells of interest to men who drill them are to be found in early Kentucky law reports. They are here reviewed because they reflect the lighter side of the well drilling business, though obviously the parties to the suits did not see them as such.

In *Thompson* v. *McPherson,* 124 S.W. 272, the defendant, a canny Scot if the name is to be trusted, turned the tables on Thompson. McPherson was the owner of land on which there was a sulphur well which the public and especially Thompson were in the habit of using freely. McPherson sued Thompson for trespassing in the use of the well, and Thompson defended himself by claiming that the well was dedicated to the public use by a prior owner of the land, and that, in any event he had a right to continue to use the well because he had been using it under claim of right for the statutory period. The court specifically refused to rule on defendant's first ground, but gave judgment for him on the second.

Sells Well to Defendant

Thereupon, the crafty McPherson sold Thompson the land on which the well was found and continued to use the well. It was Thompson's turn then to sue, and the court ruled that McPherson as a member of the general public had a right to use the well, which was what Thompson had claimed in the prior suit.

In addition to its amusing sidelights, the case illustrates that an individual or the public generally can acquire a right to the use of a well just as in the case of a strip of land used as a road, by long continued adverse use.

Retains Private Rights

In the second case, *Hamby* v. *City of Dawson Springs,* 104 S.W. 259, Hamby was the owner of a valuable mineral water well, the waters of which the defendant city was determined should be made available to the city. It thereupon commenced sinking a series of wells in the immediate vicinity with the hopes of tapping the same vein. Each time, however, it hit ordinary water, after which it ceased digging and sought another spot. When the city began drilling within 21 feet Hamby sought an injunction. It was given to him though the city was held to be lawfully using its easement for street purposes. The court recognized an exception to the general rule that the motive a person has for doing a lawful act is immaterial and hence the act could be enjoined. The appellate court had this to say about the situation:

"The owner of a lot abutting the street is presumed to own the soil to the center of the street subject to the public easement to use the street for municipal purposes as authorized by law. * * * While a town may put down a well in its streets to obtain necessary water for public purposes, it has no right to hunt in its streets for a vein of mineral water, the private property of the abutting owner, so as to take this private property for public use without compensation to him. The facts show beyond doubt

that the defendants were trying to find Hamby's water. If their well in controversy was not a success in this respect, it would have been valueless to them. If it had been a success in this respect the court would not have allowed them to use it to the prejudice of Hamby."

Mailbag . . .

(Continued from page 18)

account of insufficient clearance around the tools.

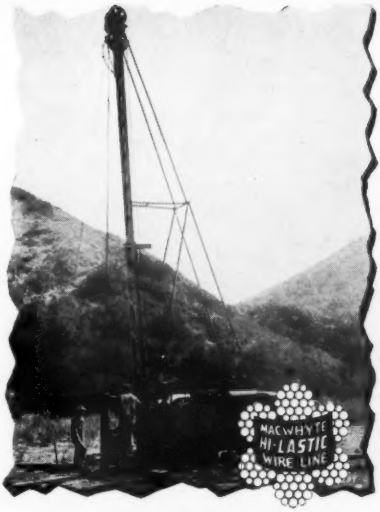
If you cannot locate a rope knife to cut the cable, you should be able to cut the cable at the top of the rope socket by running a bumper with a partly slack line.

Your idea of running an air line down to the bottom of the hole to loosen the drillings around the tools is fine under certain conditions but we do not believe it would help a particle in your case. The better way, if drillings around the tools are causing the trouble, would be to run a spud in order to loosen the tools if they can not be jarred or bumped out.

If you cut the cable off at the top of the tools and run a combination socket with fishing jars and a stem above the jars, you shouldn't have much trouble in loosening and recovering the tools in the hole.

All-Fuel Engine

AN ENTIRELY new discovery in the Diesel Engine field which enables the use of either gas or oil as fuel was announced by The Cooper-Bessemer Corporation, Mount Vernon, Ohio. The new unit can operate anywhere on oil, natural gas, coke oven gases, sewage gas, or refinery by-products, it was claimed, with only a valve controlling rapid conversion from liquid to gas at continuously operating loads.



More S-T-R-E-T-C-H for greater reach!

For profitable shallow well drilling. "Hi-Lastic" helps you drill more hole at less cost, allows tools to strike hard, sharp blows. Keeps the bit turning better on all types of formation . . . helps reduce tendency for the hole to get out of round, and for the bit to channel. "Hi-Lastic" is internally lubricated. No manila cracker needed.

For deep wells, use Macwhyte Standard Cable-Tool Lines. Specially designed for maximum speed and effectiveness. Just the right elasticity to strike long, hard, sharp blows.

For fast bailing, use Macwhyte Sand Lines. Coarse laid (6x7) or soft laid (6x19), Mild Plow Steel.

Get the CORRECT line for your equipment from No. 800

ARMY E NAVY

MACWHYTE COMPANY

2939 Fourteenth Avenue, Kenosha, Wisconsin, or any authorized Macwhyte Distributor or Mill Depot

Gets Third 'E'

AN ARMY-NAVY "E" for production excellence has been awarded to Peerless Pump Division of Food Machinery Corp., it has been announced. Large shipments of Peerless Pumps and parts for the amphibious "Water Buffalo" have been made to army posts overseas.

Sees Use Of Portable Diesels

THE USE of portable Diesel power plants to supply emergency current in American communities hit by fires, floods, hurricanes or earthquakes, was foreseen by Joseph W. Frazer, chairman of Graham - Paige Motors Corporation. "Many lives can be saved if emergency power plants reach the scene promptly, maintaining water supply, sewage disposal, and providing necessary illumination and other important services," he said. It is claimed that the units, as used by the Army, generate sufficient electricity to meet essential needs of a city until other facilities can be restored.

Announce New Hand Drill

A NEW portable electric drill claimed to be 20 per cent lighter than comparably rated drills with aluminum casings, has been announced by Independent Pneumatic Tool Company, 600 West Jackson Blvd., Chicago 6, Illinois, in their Bulletin No. E-806.

The pistol grip machines are molded from specially-developed

A Better Way to Lift Water!

We don't believe the water well exists, 100 feet deep or deeper, that a JENSEN Unit won't pump with less trouble and expense.

When you drill a good well, get credit for it—recommend a JENSEN Water Well Pumping Unit. Bulletin No. 26 free on request.

JENSEN BROS. MFG. CO.

14th and Pacific Streets, COFFEYVILLE, KANSAS, U. S. A.
EXPORT OFFICE: 50 CHURCH ST., NEW YORK CITY, NEW YORK

"Thorite" which reputedly has surpassed performances of metal housings for durability and cool, easy handling. The drills are available in speeds of 2500, 3750, and 5000 rpm, weigh 3-1/2 lbs., and are 7-9/16 inches in length.

Issue Water Systems Manual

A NEW Water System Manual, considered by the F. E. Myers & Bro. Co. of Ashland, Ohio, the most complete, practical and best illustrated Installation and Service guide ever offered the trade, has just been issued.

The 52 page manual offers simple rules and photographic instructions to make proper installation of "H" Series EJECTO Pumps quick and easy. The manual is a dealer guide and follows the policy of the Myers Company in advising that installation of water systems be made only by competent and qualified dealers.

Marlow Offers Pump Handbook

WITH the development of the centrifugal pump principle, Marlow Pumps of Ridgewood, N. J., has published a new and authoritative handbook on "Self-Priming Centrifugal Pumps."

The principles of centrifugal action, physics of pumping, and the evolution of self-priming centrifugal pumps are covered in the work. Because the many illustrations and ordinary language make the treatise easy to read and understand, plans are being completed to use it as a text book in several schools, Marlow Pumps states. Copies are free by writing to the manufacturer.

An Authoritative Guide on Its Selection, Use and Care

ONE hundred twenty-five pages crammed with illustrations, specifications and descriptive material to help you select the wire rope for your particular job. In addition, special chapters feature modern methods of splicing, socketing, lubrication, and other facts essential to the proper use and care of wire rope in every field.

This new catalog covers the complete range of both American Tiger Brand Excellay Preformed and American Tiger Brand Standard Non-Preformed Wire Rope and accessories.

A valuable data book that should be in the hands of every man who buys or uses wire rope. A request on your letterhead will receive prompt attention.

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USS STEEL
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UNITED STATES STEEL

BARGAIN COUNTER

To the reader who wishes to advertise used equipment in "Bargain Counter" Section.

All advertising in this section is payable in advance. Enclose your check or money order [illegible] per line. Minimum charge $1.20. No discounts; no commissions. Read these instructions carefully. The average line contains 28 characters (20 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number if blind advertisement is desired. Count your own copy to save delay. Holding up your advertisement one month to secure approval of revised copy or an additional remittance, may cost you real money in a lost sale. Be sure to enclose the correct amount of money with your order. Closing date—10th of preceding month. Example—January issue closes December 10th.

To the reader wishing to answer "Bargain Counter" Section advertisements appearing on these pages:

Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of THE DRILLER, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

DRILLS

1—No. 35 Armstrong steel machine, LeRoi motor, Ford V-8 mounted, 6" to 8" drill tools. No cables. Now being overhauled. $1200. Box 0414

1—No. 70 all steel Keystone, mounted on GMC truck. Equipped from 6" to 8" dia., approx. 500' of drill cable and sand line. Overhauled, perfect shape. $2500.00. Box 0404

1—No. 34 Star (Wood). LeRoi motor on White truck. 200' drill cable and sand line. $1400. Box 0424

WANTED

Well drilling machine. Truck mounting preferred. Write or wire the type, condition, location, price. C. B. Robertson, 4266 Lakewood Blvd., Long Beach, California.

Used well machine in good condition. Bucyrus-Erie 21-W, 33-W, or Armstrong 35. Please include information on price, equipment included, location of machine. Box 0432

WANTED

One or two all steel drills, with or without tools. Give condition, age, size, lowest cash price. F. N. Hagmann, Jr., Vienna, Virginia.

Wanted

Well drilling machine complete with tools and cable. Must be in good condition. Advise location and price. Box 0394

Steel drill machine, preferably 24-W or 22-W with or without tools or truck. Full details in first letter. R. Commons, Baxter Springs, Kansas.

HELP WANTED

Driller Wanted

Experienced driller at once—good wages. Steady work for right man. Write full particulars. Stewart Bros., Schenectady (2), N. Y.

HELP WANTED

Experienced water well driller. Year 'round work. Principally 4" wells. Earn $125 weekly on percentage basis. Newest equipment. Give all details first letter. Lower Michigan. Box 0434

MISC.

FOR SALE TO HIGHEST BIDDER

Deep Well Equipment

1 Synchronous Motor, 175 h.p. 4000/2300 volt, with panel.
1 Turbine, 1200 r.p.m. 1000 g.p.m.
10" Pump Support Column, 390 feet.
3" Extra Heavy Oil Tubing, 390 feet.
2—3/16" Steel Shafting, 390 ft.

For details, write City Clerk, Des Plaines, Illinois.

For Sale

Two 4" drill wrenches, claw end—$20.

One 6" drill bit, 2¼x3¼-7API-3½ sq. Perfect condition—$20.

C. A. Simpson, Bisbee, N. D.

Water Well Story Told In New Manual

PURE WATER and what it means to every well prospect is told in a water well development and equipment manual published by Clayton Mark & Company, Evanston, Ill., manufacturers of water well supplies.

A two page diagram illustrates four types of wells tapping underground water sources while four pages of photographs indicate the dangers of dug wells. Running water, water for livestock, and a discussion about the well supplies are included.

"Pure Water for Good Health" is free from the manufacturer.

EXPAND YOUR TERRITORY

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"The more square miles in my territory, the more potential customers I'll have, and the better chance for profits" . . . When a driller tells you that, he's talking sense — if he has the equipment to handle a large territory efficiently. It takes modern, fast-moving and fast-working equipment to do it. When **both** moving and drilling time are cut to a minimum, it's a cinch that you can drill more wells and bring in greater profits. That's why it will pay you to plan your post-Victory expansion with Bucyrus-Erie truck-mounted or truck-drawn drills — machines that shrink distance on the road and speed footage on the job. Investigate them now!

J-94C

BUCYRUS-ERIE CO.

South Milwaukee, Wis. Englewood, N. J.

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DON'T TRAVEL – unless your trip helps win the war

U. S. OFFICE OF DEFENSE TRANSPORTATION

DRILLER

A journal for water well drillers

SO. MILWAUKEE WIS. U.S.A.

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